

Appl. No.: 09/644,026
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Reply to Office Action of Feb. 25, 2003

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Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

- 5/27/03
1. (Canceled) An anchor plate for anchoring an intradiscal device to an endplate of a vertebra, the anchor plate comprising:
- a plate member sized to be positioned within an intradiscal section between adjacent vertebrae; and
- a plurality of anchoring elements extending from a surface of the plate member, each anchoring element including a distal portion capable of being introduced into the vertebra through the vertebral end plate.
2. (Canceled) An anchor plate according to claim 1 wherein the anchor plate includes at least 3 anchoring elements.
3. (Canceled) An anchor plate according to claim 1 wherein the anchor plate has a non-smooth surface.
4. (Canceled) An anchor plate according to claim 1 wherein the anchor plate has at least one hollow bore.
5. (Canceled) An anchor plate according to claim 1 wherein at least one of the anchoring elements includes a lumen.
6. (Canceled) An anchor plate according to claim 1 wherein at least one of the anchoring elements includes a lumen at least 0.5 mm in diameter.
7. (Canceled) An anchor plate according to claim 1 wherein the anchoring elements extend substantially perpendicular from the anchor plate.
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8. (Canceled) An anchor plate according to claim 1 wherein the anchoring elements extend angularly from the anchor plate.

9. (Canceled) An anchor plate according to claim 1 wherein the anchoring elements have at least one curved distal end.

10. (Canceled) An anchor plate according to claim 1 wherein the anchoring elements have a smooth outer surface.

11. (Canceled) An anchor plate according to claim 1 wherein the anchoring elements do not include a thread for screwing the anchoring element into the vertebral.

12. (Canceled) An implantable device for insertion into an intradiscal section between adjacent vertebrae, the device comprising:

an anchor plate comprising a plate member sized to be positioned within an intradiscal section between adjacent vertebra and a plurality of anchoring elements extending from a surface of the plate member, each anchoring element including a distal portion capable of being introduced into an end plate of one of the adjacent vertebrae; and

an intradiscal component coupled to the anchor plate.

13. (Canceled) An implantable device according to claim 12 wherein the anchor plate includes at least 3 anchoring elements.

14. (Canceled) An implantable device according to claim 12 wherein the anchor plate has a non-smooth surface.

15. (Canceled) An implantable device according to claim 12 wherein the anchor plate have at least one hollow bore.

16. (Canceled) An implantable device according to claim 12 wherein at least one of the anchoring elements includes a lumen.

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17. (Canceled) An implantable device according to claim 12 wherein at least one of the anchoring elements includes a lumen at least 0.5 mm in diameter.
18. (Canceled) An implantable device according to claim 12 wherein the anchoring elements extend substantially perpendicular from the anchor plate.
19. (Canceled) An implantable device according to claim 12 wherein the anchoring elements extend angularly from the anchor plate.
20. (Canceled) An implantable device according to claim 12 wherein the anchoring elements have at least one curved distal end.
21. (Canceled) An implantable device according to claim 12 wherein the anchoring elements have a smooth outer surface.
22. (Canceled) An implantable device according to claim 12 wherein the anchoring elements do not include a thread for screwing the anchoring element into the vertebral.
23. (Canceled) An implantable device according to claim 12 wherein the intradiscal component includes a spacer.
24. (Canceled) An implantable device according to claim 12 wherein the intradiscal component includes a cage having a first side for positioning adjacent a first vertebra and a second side for positioning adjacent a second vertebra, the first side including a plurality of holes through which the anchoring elements on the anchor plate can be positioned, and the second side including at least one hollow bore.
25. (Canceled) An implantable device according to claim 12 wherein the intradiscal component includes an artificial disc.
26. (Canceled) An implantable device according to claim 12 further includes at least one channel.

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27. (Canceled) An implantable device for insertion into an intradiscal space between adjacent vertebra, the device comprising:

a first anchor plate comprising a plate member sized to be positioned within an intradiscal section between adjacent vertebra and a plurality of anchoring elements extending from a surface of the plate member, each anchoring element including a distal portion capable of being introduced into an end plate of one of the adjacent vertebrae;

a second anchor plate comprising a plate member sized to be positioned within an intradiscal section between adjacent vertebra and a plurality of anchoring elements extending from a surface of the plate member, each anchoring element including a distal portion capable of being introduced into an end plate of one of the adjacent vertebrae; and

an intradiscal component coupled to the first and second anchor plates.

28. (Canceled) An implantable device according to claim 27 wherein the intradiscal component includes a spacer.

29. (Canceled) An implantable device according to claim 27 wherein the intradiscal component includes a cage having a first side for positioning adjacent a first vertebra and a second side for positioning adjacent a second vertebra, the first side including a plurality of holes through which the anchoring elements on the first anchor plate can be positioned, and the second side including a plurality of holes through which the anchoring elements on the second anchor plate can be positioned.

30. (Canceled) An implantable device according to claim 27 wherein the intradiscal component includes an artificial disc.

31. (Canceled) An implantable device according to claim 27 wherein the device further includes at least one channel.

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32. (Canceled) A method for attaching an anchor plate to one of the end plates of adjacent vertebrae, the method comprising:

creating a space between adjacent vertebrae;

inserting into the space created an anchor plate comprising a plate member sized to be positioned within the space and a plurality of anchoring elements extending from a surface of the plate member, each anchoring element including a distal portion capable of being introduced into an end plate of one of the adjacent vertebrae; and

causing the anchoring elements on the anchor plate to be introduced into the vertebrae through the vertebral end plate.

33. (Canceled) A method according to claim 32 wherein at least one of the anchoring elements includes a lumen.

34. (Canceled) A method according to claim 32 wherein the anchor plate includes at least one hollow bore.

35. (Canceled) A method according to claim 32 wherein causing the anchoring elements to be introduced into the vertebrae is achieved by applying a force to the anchor plate approximately perpendicular to a plane of the end plate so as to cause the anchoring elements on the anchor plate to be introduced into the vertebra through the vertebral end plate.

36. (Canceled) A method according to claim 32 wherein causing the anchoring elements to be introduced into the vertebrae is achieved without rotating the anchoring elements.

37. (Canceled) A method according to claim 32 wherein causing the anchoring elements to be introduced into the vertebrae is achieved without first creating one or more holes in the vertebrae for the anchoring elements.

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38. (Canceled) A method for anchoring an implantable device within an intradiscal section between adjacent vertebrae, the method comprising:

creating a space between adjacent vertebrae;

inserting into the space created an implantable device comprising an anchor plate comprising a plate member sized to be positioned within the space and a plurality of anchoring elements extending from a surface of the plate member, each anchoring element including a distal portion capable of being introduced into an end plate of one of the adjacent vertebrae, and an intradiscal component coupled to the anchor plate; and

causing the anchoring elements on the anchor plate to be introduced into the vertebrae through the vertebral end plate.

39. (Canceled) A method for anchoring an implantable device within an intradiscal section between adjacent vertebrae, the method comprising:

creating a space between the adjacent vertebrae;

inserting into the space created an implantable device comprising

a first anchor plate comprising a plate member sized to be positioned within the space and a plurality of anchoring elements extending from a surface of the plate member, each anchoring element including a distal portion capable of being introduced into an end plate of one of the adjacent vertebrae,

a second anchor plate comprising a plate member sized to be positioned within the space and a plurality of anchoring elements extending from a surface of the plate member, each anchoring element including a distal portion capable of being introduced into an end plate of one of the adjacent vertebrae, and an intradiscal component coupled to the first and second anchor plates; and

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causing the anchoring elements on the first and second anchor plates to be introduced into the adjacent vertebrae through each of the vertebral end plates.

40. (Canceled) A method according to claim 39 wherein causing the anchoring elements to be introduced into the vertebrae is achieved by simultaneously extending the anchoring elements of the first and second anchor plates into the vertebral end plates.

41. (Currently Amended) An implantable device comprising;

first and second anchor plates sized to be positioned within an intradiscal section between adjacent vertebra, the first and second anchor plates not being coupled to each other and configured to be individually coupled one of the adjacent vertebrae, each anchor plate comprising a plate member and a plurality of anchoring elements having outer walls that extend substantially perpendicular from the plate member which do not include threading for screwing the anchoring elements into the vertebrae, a distal portion of the anchoring elements comprising a lumen extending longitudinally within the anchoring elements from a distal end of the anchoring elements, the anchoring elements being introducable into an end plate of one of the adjacent vertebrae to secure the anchor plate to the vertebrae; and

an intradiscal component positioned between and in contact with the first and second anchor plates and attach thereto, thereby affixing the intradiscal component to the implanted first and second anchor plates secured to the adjacent vertebrae.

42. (Currently Amended) An implantable device ~~according to claim 41,~~ comprising;

first and second anchor plates sized to be positioned within an intradiscal section between adjacent vertebra, the first and second anchor plates not being coupled to each other, each anchor plate comprising a plate member and a plurality of anchoring elements having outer walls that extend substantially perpendicular from the plate

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member which do not include threading for screwing the anchoring elements into the vertebrae, a distal portion of the anchoring elements comprising a lumen extending longitudinally within the anchoring elements from a distal end of the anchoring elements wherein an interior surface of the anchoring elements is rough, the anchoring elements being introducable into an end plate of one of the adjacent vertebrae to secure the anchor plate to the vertebrae; and

an intradiscal components positioned between and in contact with the first and second anchor plate.

43. (Previously Presented) An implantable device according to claim 41, wherein at least one of the anchoring elements includes a lumen at least 0.5 mm in diameter.

44. (Previously Presented) An implantable device according to claim 41, wherein the anchoring elements have piercing distal ends such that the anchoring elements are capable of piercing an end plate of a vertebrae which does not already have holes for the anchoring elements.

45. (Previously Presented) An implantable device according to claim 41, wherein the anchoring elements have beveled distal ends.

46. (Previously Presented) An implantable device according to claim 41, wherein the intradiscal component is not coupled to either the first or second anchor plates.

47. (Previously Presented) An implantable device according to claim 46, wherein the intradiscal component is an artificial disc.

48. (Previously Presented) An implantable device according to claim 47, wherein the artificial disc comprises a nucleus having opposing convex surfaces.

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49. (Previously Presented) An implantable device according to claim 47, wherein the artificial disc comprises a nucleus having opposing convex surfaces and a side of each of the first and second anchor plates opposite the anchoring elements has a concave surface which is adapted to contact a convex surface of the artificial disc.

50. (Previously Presented) An implantable device according to claim 41, wherein the intradiscal component is coupled to either the first or second anchor plates.

51. (Previously Presented) An implantable device according to claim 50, wherein the intradiscal component is an artificial disc.

52. (Previously Presented) An implantable device comprising:

first and second anchor plates sized to be positioned within an intradiscal section between adjacent vertebrae, the first and second anchor plates not being coupled to each other, each anchor plate comprising a plate member and a plurality of anchoring elements extending substantially vertically from the plate member which do not include threading for screwing the anchoring elements into the vertebrae, a distal portion of the anchoring elements comprising a lumen extending longitudinally within the anchoring elements from a distal end of the anchoring elements, the anchoring elements being introducable into an end plate of one of the adjacent vertebrae to secure the anchor plate to the vertebrae; and

at least two spacer elements which are not coupled to each other, the spacer elements being removably coupled to opposing sides of the first and second anchor plates to keep the first and second anchor plates in a spaced apart relationship.

53. (Currently Amended) A kit for forming an implantable device for insertion into an intradiscal section between adjacent vertebrae, the kit comprising:

first and second anchoring plates sized to be positioned within an intradiscal section between adjacent vertebrae, the first and second anchor plates not being coupled to each other, each anchor plate comprising a plate member and a plurality of

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anchoring elements having outer walls that extend substantially perpendicular from the plate member which do not include threading for screwing the anchoring elements into the vertebrae, a distal portion of the anchoring elements comprising a lumen extending longitudinally within the anchoring elements from a distal end of the anchoring elements, the anchoring elements being introducable into an end plate of the of one of the adjacent vertebrae to secure the anchor plate to the vertebrae, each anchor plate configured to be individually attached to one of the adjacent vertebrae and having an intradiscal component coupled thereto, thereby affixing the intradiscal component to the first and second anchor plates secured to the adjacent vertebrae.

54. (Currently Amended) A kit according to claim 53, for forming an implantable device for insertion into an intradiscal section between adjacent vertebrae, the kit comprising:

first and second anchoring plates sized to be positioned within an intradiscal section between adjacent vertebrae, the first and second anchor plates not being coupled to each other, each anchor plate comprising a plate member and a plurality of anchoring elements having outer walls that extend substantially perpendicular from the plate member which do not include threading for screwing the anchoring elements into the vertebrae, a distal portion of the anchoring elements comprising a lumen extending longitudinally within the anchoring elements from a distal end of the anchoring elements wherein the interior lumen surface of the anchoring elements is rough, the anchoring elements being introducable into an end plate of the of one of the adjacent vertebrae to secure the anchor plate to the vertebrae.

55. (Previously Presented) A kit according to claim 53, wherein at least one of the anchoring elements includes a lumen at least 0.5 mm in diameter.

56. (Previously Presented) A kit according to claim 53, wherein the anchoring elements have piercing distal ends such that the anchoring elements are capable of

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piercing an end plate of a vertebrae which does not already have holes for the anchoring elements.

57. (Previously Presented) A kit according to claim 53, wherein the anchoring elements have beveled distal ends.

58. (Previously Presented) A kit according to claim 53, wherein the kit further comprises an intradiscal component.

59. (Previously Presented) A kit according to claim 58, wherein the intradiscal component is not coupled to either the first or second anchor plates.

60. (Previously Presented) A kit according to claim 53, wherein the kit further comprises an artificial disc which is not coupled to either the first or second anchor plates.

61. (Previously Presented) A kit according to claim 60, wherein the artificial disc comprises a nucleus having opposing convex surfaces.

62. (Previously Presented) A kit according to claim 60, wherein the artificial disc comprises a nucleus having opposing convex surfaces and a side of each of the first and second anchor plates opposite the anchoring elements has a concave surface which is adapted to contact a convex surface of the artificial disc,

63. (Currently Amended) A kit according to claim 53, forming an implantable device for insertion into an intradiscal section between adjacent vertebrae, wherein the kit further comprises comprising:

first and second anchoring plates sized to be positioned within an intradiscal section between adjacent vertebrae, the first and second anchor plates not being coupled to each other, each anchor plate comprising a plate member and a plurality of anchoring elements having outer walls that extend substantially perpendicular from the plate member which do not include threading for screwing the anchoring elements into

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the vertebrae, a distal portion of the anchoring elements comprising a lumen extending longitudinally within the anchoring elements from a distal end of the anchoring elements, the anchoring elements being introducable into an end plate of the of one of the adjacent vertebrae to secure the anchor plate to the vertebrae; and

at least two spacer elements which are not coupled to each other, the spacer elements being adapted to be coupled to opposing sides of the first and second anchor plates to keep the first and second anchor plates in a spaced apart relationship.

64. (Previously Presented) A kit according to claim 53, wherein one of the first or second anchor plates further comprises an intradiscal component.

65. (Previously Presented) A kit according to claim 64, wherein the intradiscal component is an artificial disc.

66. (New) An implantable device, comprising:

at least one intervertebral device:

a first anchor plate attachable to a vertebrae and configured to have the intervertebral device coupled thereto, the first anchor plate having a first plant member;

a second anchor plate attachable to a vertebrae and configured to have the intervertebral device coupled thereto, the second anchor plate having a second plate member; and

one or more anchor elements positioned on the first and second anchor plates.

67. (New) The device of claim 66 wherein the intervertebral device is selected from a group consisting of an intervertebral cage, an artificial vertebral body, an intradiscal spacer, a hemi-implantable device, an artificial intravertebral disc, and an intervertebral fusion device.

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68. (New) The device of claim 66 wherein at least one of the first and second anchor plates comprises at least one hollow bore therethrough.

69. (New) The device of claim 66 wherein the anchor elements further comprise an outer wall defining an internal lumen positioned longitudinally within the at least one anchoring element.

70. (New) The device of claim 66 wherein the internal lumen further comprises a rough interior surface.

71. (New) A method of implanting an intervertebral device, comprising:

accessing the implantation site;

attaching a first anchor plate to the end plate of a vertebrae;

attaching a second anchor plate to an adjacent vertebrae; and

coupling an intervertebral device to the implanted first and second anchor plates.